**Change in Position** Every object on a two-dimensional surface has a pair of x/y coordinates. Changing the coordinates moves the object. (3-D animation includes the z axis.) In this sequence, the object's x position is changing, while the y position is fixed, yielding a horizontal movement.

## Change Over Time

All animation consists of change over time. The most obvious form of change consists of an element moving around on the screen—the Road Runner approach. The Road Runner can "walk" onto the screen like a character in a play, or it can appear there suddenly as in a cut in a film.

Changing the position of an object is just one way to make it change. Other modes of change include shifting its scale, color, shape, and transparency. By altering the degree of change and the speed with which the change takes place, the animator produces different qualities of movement. Complex and subtle behaviors are created by using different modes of change simultaneously. For example, an object can fade slowly onto the screen (changing transparency) while also getting bigger (changing in scale).
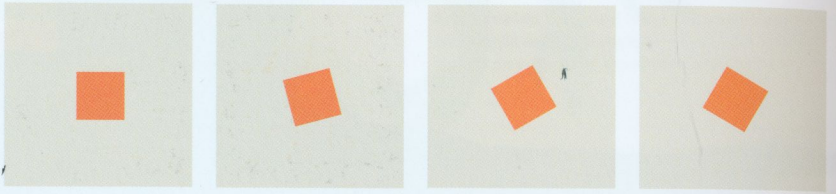


**Change in Rotation** Continuously altering the angle of an object creates the appearance of spinning, shaking, and other behaviors.
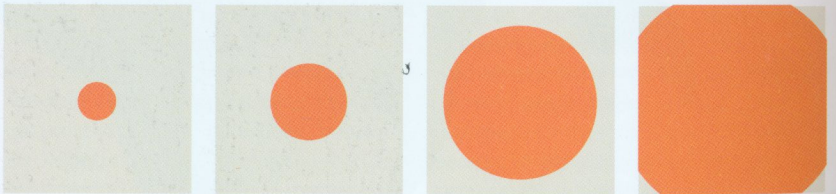


**Change in Scale** Making an object larger or smaller creates the impression of it moving backward or forward in space. Here, the object is not moving (changing its position); only its size is changing.
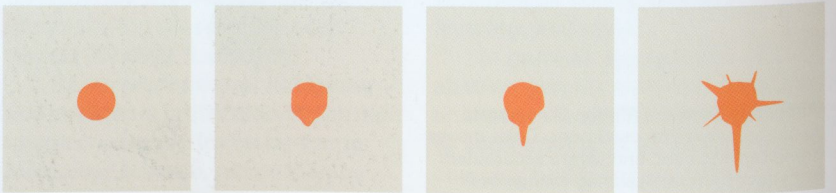


**Change in Shape** Letting a line wander can produce all types of shapes: abstract, amorphous, representational.
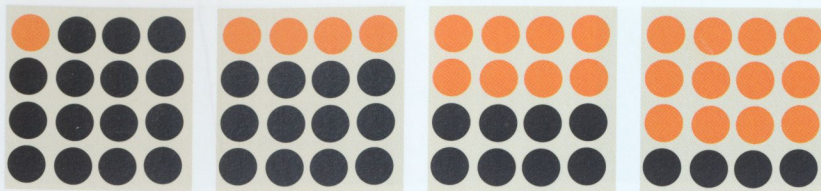
**Change in Color** Like a theater marquee that creates the appearance of movement by sequentially turning light bulbs on and off, color animation creates motion by sequentially illuminating or changing the color of predefined areas or objects.

Here, a wave of color appears to pass over a field of static objects. Countless variations are possible.
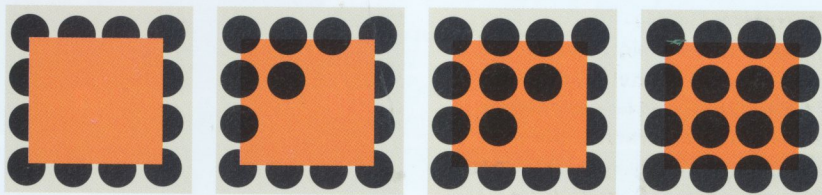


**Change in Depth** Many image-editing programs allow the designer to divide an image into layers, which are comparable to the sheets of transparent acetate used in traditional cell animation.

Layers can be duplicated, deleted, altered to support new image elements, merged into a single image, and hidden. Here, objects on back layers gradually move forward.
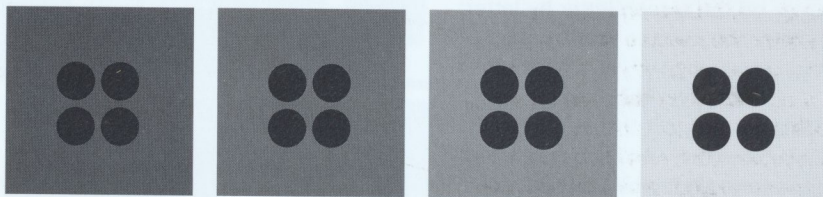


**Change in Transparency** Animators alter the transparency of an image to give it the appearance of fading in or out of view. Here, the top layer gradually becomes more transparent, revealing an image behind it.
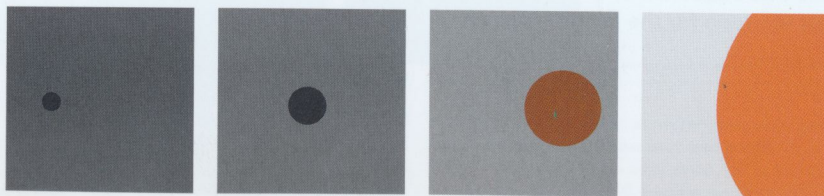


**Multiple Modes of Change** Most animations combine several modes of change at once.

This sequence incorporates changes in position, scale, color, and transparency.